

What is claimed is:

1. A method for selecting a characterizing algorithm for generating a characterizing information descriptor for a selected block of printed material, where said printed material is to be scanned from an object and compared with said characterizing information descriptor at a location distant from where said block is printed, said method comprising the steps of:

a) printing said block on an object;

b) applying each algorithm from a predetermined set of characterizing algorithms to a pristine image of said block of printed material to generate a plurality of corresponding first characterizing information descriptors for said block;

c) determining estimates of robustness, with respect to said block of printed material, for each of said algorithms in said set to determine which of said characterizing algorithms is most robust; and

d) selecting a descriptor generated by said algorithm and being so determined to be most robust be used at said distant location.

2. A method as described in claim 1 wherein said step c) comprises the sub-steps of:

c1) filtering said pristine digital image of said block of printed material with a print/scan filter to create a filtered image, said print/scan filter simulating the expected transformation of said pristine image by printing and scanning processes;

c2) applying each algorithm from said predetermined set of characterizing algorithms to said filtered image to generate a plurality of corresponding second characterizing information descriptors for said filtered digital image; and

c3) for each algorithm from said predetermined set of characterizing algorithms, comparing corresponding said first and said second descriptors to determine which of said characterizing algorithms is most robust.

3. A method as described in claim 2 where said object is a mail piece, and said block of printed material represents an address.

4. A method as described in claim 3 where said selected descriptor is comprised in an indicium printed on said mail piece; whereby said selected descriptor can be recovered from said indicium for use at said remote location.

5. A method as described in claim 4 where said indicium further comprises information identifying said algorithm so determined.

6. A method as described in claim 2 where said selected descriptor is one of said second descriptors.

7. A method as described in claim 1 where said object is a mail piece and said block of printed material represents an address.

8. A method as described in claim 7 where said selected descriptor is comprised in an indicium printed on said mail piece; whereby said selected descriptor can be recovered from said indicium for use at said remote location.

9. A method as described in claim 8 where said indicium further comprises information identifying said algorithm so determined.

10. A method as described in claim 1 wherein said step c) comprises the sub-steps of:

c1) filtering said pristine digital image of said block of printed material with a print/scan filter to create a filtered image, said print/scan filter simulating the expected transformation of said pristine image by printing and scanning processes;

c2) further filtering said filtered image with one or more defacing filters, said defacing filters simulating simulate blots, smudges, failure of print elements or scanner sensors, or other, similar occasional events which can not easily be incorporated into said print/scan filter to create one or more defaced images;

c2) applying each algorithm from said predetermined set of characterizing algorithms to said filtered image and to said one or more defaced images to generate a plurality of corresponding second characterizing information descriptors for said filtered digital image and one or more pluralities of defaced image descriptors corresponding to each of said one or more defaced images; and

c3) for each algorithm from said predetermined set of characterizing algorithms, comparing corresponding first characterizing information descriptors with corresponding second characterizing information descriptors and with each of said one or more corresponding defaced image descriptors to determine which of said characterizing algorithms is most robust.

11. A method as described in claim 10 where said object is a mail piece and said block of printed material represents an address.

12. A method as described in claim 11 where said selected descriptor is comprised in an indicium printed on said mail piece; whereby said selected descriptor can be recovered from said indicium for use at said remote location.

13. A method as described in claim 12 where said indicium further comprises information identifying said algorithm so determined.

14. A method as described in claim 10 where said selected descriptor is one of said second descriptors.

15. A secure indicia printing system for generating and printing an indicium on an object, said object having other material printed thereon, comprising:

a) a printer for printing said indicium;

b) a processor for receiving a pristine digital image of said other printed material, and for processing said image to abstract characterizing information descriptive of aspects of said image from said image, said processor being programmed to:

b1) apply each algorithm from a predetermined set of characterizing algorithms to said pristine image of said block of printed material to generate a plurality of corresponding first characterizing information descriptors for said block;

b2) determine estimates of robustness, with respect to said block of printed material, for each of said algorithms in said set to determine which of said characterizing algorithms is most robust;

b3) select a descriptor generated by said algorithm and being so determined to be most robust; and

b4) output said selected descriptor;

c) a meter, said meter communicating with said processor to receive said descriptor, and having a communications link for receiving other information from another information source, and communicating with said printer, for;

c1) cryptographically authenticating said descriptor and other information;

c2) generating said indicium to be representative of said cryptographically authenticated descriptor and information; and

c3) controlling said printer to print said indicium on said object; whereby

d) said object's relationship to said indicium can be verified by regenerating said first characterizing information descriptor from said other printed material and comparing said regenerated descriptor with said descriptor recovered from said

indicium, and copies of said indicium cannot easily be used without detection on other objects which do not include said other printed material.

16. A system as described in claim 15 where said processor is programmed to carry out said programming step b2) by:

b2.1) filtering said pristine digital image of said block of printed material with a print/scan filter to create a filtered image, said print/scan filter simulating the expected transformation of said pristine image by printing and scanning processes;

c2) applying each algorithm from said predetermined set of characterizing algorithms to said filtered image to generate a plurality of corresponding second characterizing information descriptors for said filtered digital image; and

c3) for each algorithm from said predetermined set of characterizing algorithms, comparing corresponding said first and said second descriptors to determine which of said characterizing algorithms is most robust.

17. A system as described in claim 15 where said processor is programmed to carry out said programming step b2) by:

b2.1) filtering said pristine digital image of said block of printed material with a print/scan filter to create a filtered image, said print/scan filter simulating the expected transformation of said pristine image by printing and scanning processes;

b2.2) further filtering said filtered image with one or more defacing filters, said defacing filters simulating simulate blots, smudges, failure of print elements or

scanner sensors, or other, similar occasional events which can not easily be incorporated into said print/scan filter to create one or more defaced images;

b2.3) applying each algorithm from said predetermined set of characterizing algorithms to said filtered image and to said one or more defaced images to generate a plurality of corresponding second characterizing information descriptors for said filtered digital image and one or more pluralities of defaced image descriptors corresponding to each of said one or more defaced images; and

b2.4) for each algorithm from said predetermined set of characterizing algorithms, comparing corresponding first characterizing information descriptors with corresponding second characterizing information descriptors and with each of said one or more defaced image descriptors to determine which of said characterizing algorithms is most robust.

18. A programmable data processing system for selecting a characterizing algorithm for generating a characterizing information descriptor for a selected block of printed material, where said printed material is to be scanned from an object and compared with said characterizing information descriptor at a location distant from where said block is printed, said data processing system being programmed to:

a) apply each algorithm from a predetermined set of characterizing algorithms to a pristine image of said block of printed material to generate a plurality of corresponding first characterizing information descriptors for said block;

b) determine estimates of robustness, with respect to said block of printed material, for each of said algorithms in said set to determine which of said characterizing algorithms is most robust; and

c) select a descriptor generated by said algorithm and being so determined to be most robust to be used at said distant location.

19. A system as described in claim 18 wherein said system is programmed to carry out programming step b) by:

b1) filtering said pristine digital image of said block of printed material with a print/scan filter to create a filtered image, said print/scan filter simulating the expected transformation of said pristine image by printing and scanning processes;

b2) applying each algorithm from said predetermined set of characterizing algorithms to said filtered image to generate a plurality of corresponding second characterizing information descriptors for said filtered digital image; and

b3) for each algorithm from said predetermined set of characterizing algorithms, comparing corresponding said first and said second descriptors to determine which of said characterizing algorithms is most robust.

20. A system as described in claim 19 where said object is a mail piece and said block of printed material represents an address.

21. A system as described in claim 19 where said selected descriptor is one of said second descriptors.

22. A system as described in claim 18 where said object is a mail piece and said block of printed material represents an address.

23. A system as described in claim 18 wherein said system is programmed to carry out programming step b) by:

b1) filtering said pristine digital image of said block of printed material with a print/scan filter to create a filtered image, said print/scan filter simulating the expected transformation of said pristine image by printing and scanning processes;

b2) further filtering said filtered image with one or more defacing filters, said defacing filters simulating simulate blots, smudges, failure of print elements or scanner sensors, or other, similar occasional events which can not easily be incorporated into said print/scan filter to create one or more defaced images;

b3) applying each algorithm from said predetermined set of characterizing algorithms to said filtered image and to said one or more defaced images to generate a plurality of corresponding second characterizing information descriptors for said filtered digital image and one or more pluralities of defaced image descriptors corresponding to each of said one or more defaced images; and

b4) for each algorithm from said predetermined set of characterizing algorithms, comparing corresponding first characterizing information descriptors with corresponding second characterizing information descriptors and with each of said one

or more corresponding defaced image descriptors to determine which of said characterizing algorithms is most robust.

24. A method as described in claim 23 where said object is a mail piece and said block of printed material represents an address.

25. A method as described in claim 23 where said selected descriptor is one of said second descriptors.